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Utility saves big OpEx in modernizing its power grid

To boost capital returns and modernize its power grid, a top U.S. utility firm saved $3.25 million in operating expenses over 5 years via a cloud-native solution from Dell Technologies

Energy | United States

Business needs

A top U.S. utility providing energy in a multistate region wanted to migrate applications from costly WebSphere server environment to a cloud-native one to save substantial OPEX and time. The firm suffered several false starts in its migration attempts over a two-year period, prior to adopting this new solution.

Solutions at a glance

- Dell EMC VxRail hyperconverged infrastructure
- Pivotal Platform
- Pivotal Container Service (PKS)
- Pivotal Ready Architecture
- VMware vSphere hypervisor
- VMware NSX-T network virtualization

Business results

- Improved its regulatory rate structure
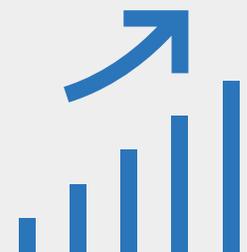- Freed IT staff time for more strategic projects

Cut application development cycle time by at least

75%

Added $3.3 million to bottom-line profits over

5 years

In the U.S. today, most people expect to flip a wall switch and light up a room. But they don't realize this simple phenomenon has a $2 trillion power grid behind it. Nor do they know the grid desperately needs about $5 trillion of modernization. While executives at all electric utility firms are well aware of this strategic need, they keep a keen watch on capital expenses (CapEx) to ensure they can pay out the dividends their shareholders count on.

As a highly regulated industry, utilities pay those dividends from their returns on net invested capital, while operating expenses (OpEx) are passed through to customers without any profit markup. This motivates the utilities to keep their OpEx low, reducing costs to customers, while also minimizing CapEx to boost shareholder returns.

One of the nation's largest electric utility companies is taking its grid modernization challenges head on, while finding ways to cut OpEx and CapEx. For starters, management approved an investigation into the cost and time savings of moving applications from waterfall development and data-center production environments to containerized, cloud-native ones—containers as a service (CaaS).

Taking the first step

After several attempts at implementing this strategy over two years, this electric utility only had time-consuming and costly failures to show for its efforts. It was time to call in the professionals. For help migrating to a CaaS environment, the company called in experts from Dell Technologies. Based on their need to start small with containers and maintain the flexibility to leverage Kubernetes on and off premises, Dell Technologies recommended Pivotal Ready Architecture (PRA), the fastest way to deploy Pivotal Platform on-premises and in multi-cloud environments.

As a proof of concept, the utility chose an application that monitors millions of streetlights across its multistate service areas. This application is critical to the business because regions are often subject to catastrophic weather, resulting in malfunctioning lights which require dispatching service techs to inspect and repair them— an expensive task.

The utility had this existing application deployed on a series of 48 WebSphere servers across four environments: development, test, quality assurance and production. They chose to replace that infrastructure with PRA from Dell Technologies. The tight

integration between Pivotal, VMware, and Dell EMC resulted in this jointly-engineered solution and an agile engineering team within Pivotal is dedicated to testing and validating small, medium and large deployment architectures quarterly. This ensures our customers benefit from a reference architecture using the latest versions that is proven to operate at peak levels. PRA provides the utility's development and IT operations teams with a full technology stack solution inclusive of:

- Dell EMC VxRail HCI

- Pivotal Platform and/or Pivotal Container Service (PKS)

- VMware vSphere hypervisor

- VMware NSX-T network virtualization

- VMware vSAN

To develop the solution's business case, members of the utility's accounting and IT groups worked with Dell Technologies to conduct a comprehensive analysis to compare the existing WebSphere production environment with PRA.

The latter's advantages were so extreme—virtually eliminating OpEx—that the utility's CFO reportedly didn't believe them at first. After reviewing the data, he gave the green light to begin the migration of both the application's development and its operational production environment to a PRA-based CaaS model. And then said, "Why aren't we doing more of this?" The utility then purchased four additional PRA solutions to meet the needs of other departments throughout the company.

Reduced 5-year OpEx costs for application hosting by

99.97%

First-year savings of 94 percent; five-year savings of 99.97%

One year after a non-disruptive migration of the application to PRA, the savings estimates proved to be spot on. In fact, the utility's first-year CapEx and OpEx to set up the PKS production environment were just over $90,000. That compares to nearly $1.5 million for the WebSphere server environment—a 94 percent savings.

But the savings difference will grow even more in coming years, thanks to the automation of the application's maintenance to minimize OpEx. The utility's five-year total cost of ownership is forecast to be just $91,000 for migrating the application to the PRA environment. The cumulative five-year OpEx savings will be $3.25 million, a savings of 99.97 percent.

The CapEx and OpEx savings will also help the utility in negotiating its rate structures with various state regulators. In fact, the Dell Technologies PRA solution has entirely freed the company's IT group from operating it. This enables them to focus on higher value projects that support their business objectives, especially grid modernization.

Time savings from the utility's migration of its application development to an agile DevOps model facilitated by PRA were just as dramatic. Instead of development cycles of 6–18 months, its developers can now move through development, test and quality assurance cycles in as little as six weeks, a reduction of at least 75 percent.
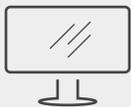
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